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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,996	06/20/2003	Chee-Yong Chan	3-1-2-14-51	5760

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EXAMINER
AHLUWALIA, NAVNEET K

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/600,996	CHAN ET AL.
	Examiner	**Art Unit**	
	Navneet K. Ahluwalia	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *20 June 2003*.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-17* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-17* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *14 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *12/30/2005*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

The application has been examined. Claims 1 – 17 are pending in this office action.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

3.   Claims 1 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

El-Shimi et al. ('El-Shimi' herein after) (US 6,931,405 B2) in view of Estimating the

Selectivity of XML Path Expressions for Internet Scale Applications by Ashraf

Aboulnaga, Alaa R. Alamdeen, Jeffrey F. Naughton ('Aboulnaga' herein after).

With respect to claim 1,

El-Shimi discloses in a communication system, a method for information

dissemination, the method comprising the steps of:

- providing a set of subscriptions, at least one of the set of subscriptions

  comprising a tree pattern, wherein the tree pattern comprises one or more

  interconnected nodes having a hierarchy and adapted to specify content

  and structure of information (Figure 5 elements 501, 502, 503 and 504,

  column 8 lines 15 – 25, 51 – 62, El-Shimi); and

- using the set of subscriptions to select information for dissemination to one

  or more users (Figure 2, 3, column 10 lines 14 – 22, El-Shimi).

El-Shimi however does not disclose the nodes having hierarchy explicitly as

claimed.

Aboulnaga teaches the hierarchy between nodes (page 3 section 3 Path Trees

column 1 lines 1 - 11).

It would have been obvious to one of ordinary skill in the art of data

processing at the time of the present invention to combine the teachings of cited

references because the selectivity of XML Path expressions of Aboulnaga would

improve on the optimization time of El-Shimi's method (page 1 section 1 Introduction

column 2 lines 36 – 46, Aboulnaga). Furthermore the pruning of the tree to ensure that it

fits in the available memory would make the process of matching more efficient (page 2

section 1 Introduction column 1 lines 19 – 24, Aboulnaga).

4.   Claims 2 – 8 are rejected under the same rationale given for claim 1. The

citations of the elements claimed and taught are listed below.

With respect to claim 2,

El-Shimi discloses the method of claim 1, wherein the at least one subscription

describes information the one or more users are interested in receiving (Figure 5

elements 501, 502, column 4 lines 26 – 35, El-Shimi).

With respect to claim 3,

El-Shimi discloses the method of claim 1, further comprising the step of

determining an aggregation from the set of subscriptions, the aggregation comprising a

set of aggregate patterns, wherein the set of aggregate patterns is smaller than the set

of subscriptions, and wherein the step of using the set of subscriptions to select

information for dissemination further comprises using the set of aggregate patterns to

select the information for dissemination to the one or more users (column 9 lines 32 –

35, 60 – 67, El-Shimi).

With respect to claim 4,

El-Shimi discloses the method of claim 1, wherein the information comprises one

or more documents defined using extensible markup language (XML) (column 9 lines 1

– 8, El-Shimi).

With respect to claim 5,

El-Shimi discloses the method of claim 3, wherein at least one of the aggregate patterns and the tree pattern each is defined using extensible markup language (XML) (column 2 lines 64 – 67, column 4 lines 26 – 34, El-Shimi).

With respect to claim 6,

El-Shimi discloses the method of claim 3, wherein each aggregate pattern and each subscription comprises a tree pattern having one or more interconnected nodes having a hierarchy, and wherein the set of aggregate patterns is smaller than the set of subscriptions in that a number of aggregate patterns in the set of aggregate patterns is smaller than a number of tree patterns in the set of subscriptions and that a number of nodes in the set of aggregate patterns is smaller than a number of nodes in the set of subscriptions (column 9 lines 32 – 35, 60 – 67, El-Shimi).

With respect to claim 7,

Aboulnaga teaches the method of claim 3, wherein the step of determining an aggregation further comprises the step of determining the aggregation from the set of subscriptions by using at least a space constraint (page 2 section 1 Introduction column 1 lines 21 – 24, Aboulnaga).

With respect to claim 8,

Aboulnaga teaches the method of claim 7, wherein the space constraint

comprises a predetermined number of bytes (page 2 section 1 Introduction column 1

lines 19 – 24, Aboulnaga).

With respect to claim 9,

El-Shimi discloses the method of claim 3, wherein the set of subscriptions

comprises a plurality of tree patterns, each of the tree patterns comprising one or more

interconnected nodes having a hierarchy and adapted to specify content and structure

of information, and wherein the step of determining an aggregation further comprises

the step of determining a least upper bound pattern for two of the plurality of tree

patterns in the set of subscriptions, the least upper bound pattern chosen as an

aggregate pattern (column 9 lines 32 – 35, 60 – 67, El-Shimi).

El-Shimi however does not disclose the least upper bound pattern explicitly as

claimed.

Aboulnaga teaches the least upper bound pattern (page 3 section 3 Path Trees

column 1 lines 31 – 38, Aboulnaga).

It would have been obvious to one of ordinary skill in the art of data

processing at the time of the present invention to combine the teachings of cited

references because the selectivity of XML Path expressions of Aboulnaga would

improve on the optimization time of El-Shimi's method (page 1 section 1 Introduction

column 2 lines 36 – 46, Aboulnaga). Furthermore the pruning of the tree to ensure that it

fits in the available memory would make the process of matching more efficient (page 2

section 1 Introduction column 1 lines 19 – 24, Aboulnaga).

5.   Claims 10 – 11 are rejected under the same rationale given for claim 9. The

citations of the elements claimed and taught are listed below.

With respect to claim 10,

Aboulnaga teaches traversing the first and second tree patterns and computing a

tightest container pattern by: computing a position-preserving tightest container pattern

by finding common sub-patterns; computing an off-position tightest container pattern by

finding common sub-patterns; and constructing the tightest container pattern by taking a

union of the position-preserving tightest container pattern and the off-position tightest

container pattern, wherein the tightest container pattern is used as the least upper

bound pattern (page 4 section 3.2 selectivity estimation column 1 lines 1 – 8, 27 – 35,

Aboulnaga).

With respect to claim 11,

Aboulnaga teaches the step of determining a least upper bound pattern for two of

the plurality of tree patterns further comprises the steps of determining a tightest

container pattern for the two tree patterns and minimizing the tightest container pattern

to create a minimal pattern, wherein the minimal pattern is used as the least upper

bound pattern (page 4 section 3.3 Level-* column 2 lines 1 – 15, Aboulnaga).

With respect to claim 12,

Aboulnaga teaches pruning each candidate aggregate pattern by deleting or merging nodes; selecting a chosen tree pattern from the candidate aggregate patterns having a predetermined marginal gain; and replacing all tree patterns, in the candidate set of tree patterns, that are contained in the chosen tree pattern by the chosen tree pattern (page 6 section 5.1 Estimation using Pruned Suffix Trees column 2 lines 3 – 12, Aboulnaga).

With respect to claim 13,

Aboulnaga teaches wherein the marginal gain is determined by a benefit value of a tree pattern (page 1 section 1 Introduction column 2 lines 36 – 46, Aboulnaga).

With respect to claim 14,

Aboulnaga teaches wherein the candidate set of tree patterns occupies a space and wherein the benefit value is determined from a ratio of savings in the space for a corresponding tree pattern to a loss in selectivity for the corresponding tree pattern (page 6 section 5.1 Estimation using Pruned Suffix Trees column 2 lines 3 – 12, Aboulnaga).

With respect to claim 15,

Aboulnaga teaches the method of claim 14, wherein the selectivity is determined by sampling matching of information to candidate patterns (page 4 section 3.3 Level-*

column 2 lines 1 – 15, Aboulnaga).

With respect to claim 16,

El-Shimi discloses a communication system, an apparatus for providing

information dissemination, the apparatus comprising: a memory; and at least one

processor, coupled to the memory; the apparatus operative: to provide a set of

subscriptions, at least one of the set of subscriptions comprising a tree pattern, wherein

the tree pattern comprises one or more interconnected nodes having a hierarchy and

adapted to specify content and structure of information (Figure 5 elements 501, 502,

503 and 504, column 8 lines 15 – 25, 51 – 62, El-Shimi); and to use the set of

subscriptions to select information for dissemination to one or more users (Figure 2, 3,

column 10 lines 14 – 22, El-Shimi).

El-Shimi however does not disclose the nodes having hierarchy explicitly as

claimed.

Aboulnaga teaches the hierarchy between nodes (page 3 section 3 Path Trees

column 1 lines 1 - 11).

It would have been obvious to one of ordinary skill in the art of data

processing at the time of the present invention to combine the teachings of cited

references because the selectivity of XML Path expressions of Aboulnaga would

improve on the optimization time of El-Shimi's apparatus (page 1 section 1 Introduction

column 2 lines 36 – 46, Aboulnaga). Furthermore the pruning of the tree to ensure that it

fits in the available memory would make the process of matching more efficient (page 2

section 1 Introduction column 1 lines 19 – 24, Aboulnaga).

With respect to claim 17,

El-Shimi discloses an article of manufacture for providing information

dissemination, the article of manufacture comprising: a machine readable medium

containing one or more programs which when executed implement the steps of:

providing a set of subscriptions, at least one of the set of subscriptions comprising a

tree pattern, wherein the tree pattern comprises one or more interconnected nodes

having a hierarchy and adapted to specify content and structure of information (Figure 5

elements 501, 502, 503 and 504, column 8 lines 15 – 25, 51 – 62, El-Shimi); and using

the set of subscriptions to select information for dissemination to one or more users

(Figure 2, 3, column 10 lines 14 – 22, El-Shimi).

El-Shimi however does not disclose the nodes having hierarchy explicitly as

claimed.

Aboulnaga teaches the hierarchy between nodes (page 3 section 3 Path Trees

column 1 lines 1 - 11).

It would have been obvious to one of ordinary skill in the art of data

processing at the time of the present invention to combine the teachings of cited

references because the selectivity of XML Path expressions of Aboulnaga would

improve on the optimization time of El-Shimi's article (page 1 section 1 Introduction

column 2 lines 36 – 46, Aboulnaga). Furthermore the pruning of the tree to ensure that it

fits in the available memory would make the process of matching more efficient (page 2

section 1 Introduction column 1 lines 19 – 24, Aboulnaga).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Navneet K. Ahluwalia whose telephone number is 571-272-5636. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alam T. Hosain can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Navneet K. Ahluwalia
Examiner
Art Unit 2166

Dated: 12/30/2005

MOHAMMAD ALI
PRIMARY EXAMINER